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EXAMINER

LEE, SHUN K

ART UNIT PAPER NUMBER

2878

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Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	09/925,059		ZHANG, EVAN Y.W.	
	<b>Examiner</b>		<b>Art Unit</b>	
	Shun Lee		2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 February 2004 and 24 February 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 4-6,9,10,14-16,27-33 and 36-41 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 4-6,9,10,14-16,27-33 and 36-41 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 8/8/01 & 2/24/04 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Amendment***

1. It is noted that the amendment filed 24 February 2004 appears to be a substantial duplicate of the amendment filed 12 February 2004.
2. The amendment to the drawings filed on 24 February 2004 does not comply with the requirements of 37 CFR 1.121(d) because any changes to an application drawing must be in compliance with § 1.84 and must be submitted on a replacement sheet of drawings which shall be an attachment to the amendment document and, in the header, labeled "Replacement Sheet".

### ***Drawings***

3. The drawings were received on 24 February 2004. These drawings are not acceptable.
4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 124D (pg. 21, line 23). It is noted that while applicant indicates that reference sign 124D was added to Fig.5, reference sign 124D was not found within Fig.
5. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
5. The drawings are also objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "viewing device mounted to a headgear such that, when said headgear is worn by an operator,

said viewing device is positioned just above the eyes of an operator, and said viewing device may be viewed by said operator by looking upwards towards said viewing device" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Specification***

6. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### ***Claim Objections***

7. Claims 4-6, 9, 10, 14-16, and 27-33 are objected to because of the following informalities:

- (a) in claim 4, "An infrared imaging device" on line 1 should probably be --The infrared and visible image fusion device--;
- (b) in claim 4, "at least a portion of " on line 4 should probably be deleted (see "filtered into a first spectral range" on line 5 in claim 36);
- (c) in claim 4, "at least a portion of " on line 7 should probably be deleted (see "filtered into a second spectral range" on line 8 in claim 36);

- (d) in claim 5, "An infrared imaging device" on line 1 should probably be --The infrared and visible image fusion device--;
- (e) in claim 6, "An infrared imaging device" on line 1 should probably be --The infrared and visible image fusion device--;
- (f) in claim 9, "An infrared imaging device" on line 1 should probably be --The infrared and visible image fusion device--;
- (g) in claim 9, "said infrared imaging device" on lines 1-2 should probably be --said infrared and visible image fusion device--;
- (h) in claim 10, "An infrared imaging device" on line 1 should probably be --The infrared and visible image fusion device--;
- (i) in claim 14, "An infrared imaging device" on line 1 should probably be --The infrared and visible image fusion device--;
- (j) in claim 14, "said infrared imaging device" on line 3 should probably be --said infrared and visible image fusion device--;
- (k) in claim 15, "An infrared imaging device" on line 1 should probably be --The infrared and visible image fusion device--;
- (l) in claim 16, "An infrared imaging device" on line 1 should probably be --The infrared and visible image fusion device--;
- (m) in claim 27, "An infrared imaging device" on line 1 should probably be --The infrared and visible image fusion device--;
- (n) in claim 28, "An infrared imaging device" on line 1 should probably be --The infrared and visible image fusion device--;

- (o) in claim 29, "An infrared imaging device" on line 1 should probably be --The infrared and visible image fusion device--;
- (p) in claim 29, "said infrared imaging device" on line 6 should probably be --said infrared and visible image fusion device--;
- (q) in claim 30, "An infrared imaging device" on line 1 should probably be --The infrared and visible image fusion device--;
- (r) in claim 30, "said infrared imaging device" on lines 2-3 should probably be --said infrared and visible image fusion device--;
- (s) in claim 31, "An infrared imaging device" on line 1 should probably be --The infrared and visible image fusion device--;
- (t) in claim 32, "An infrared imaging device" on line 1 should probably be --The infrared and visible image fusion device--; and
- (u) in claim 33, "An infrared imaging device" on line 1 should probably be --The infrared and visible image fusion device--.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

8. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

9. Claims 27 and 37-41 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to

one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 27 recites the limitation "a transceiver arranged to transmit and receive image signals to and from a remote location" which was not described in the specification.

Claim 41 recites the limitation "a composite lens free of crystal germanium". While the specification discloses (pg. 13) that a preferred objective lens 124A comprises a combination of three elements (ZnSe-Ge<sub>33</sub>As<sub>12</sub>Se<sub>55</sub>-ZnSe), a composite lens free of crystal germanium was not described in the specification.

The specification discloses (pg. 22) that " ... the data fusion board 139 preferably includes circuitry to perform image processing such as inserting data, scaling images, aligning pixels, making image addition, subtraction, enhancements etc. ... the image combination can be picture in picture, overlaid, fused or otherwise mixed, the images may be viewed independently, or side by side", (pg. 24) that " ... the images are stored in memory and manipulated such that all images are formatted to a common scale. ... By converting the images to a consistent pixel and size format, pixel-by-pixel data fusion can be realized, and other digital manipulation such as addition, subtraction etc. can be performed", and (pg. 28) that " ... where fusion of VIS/NIR and LWIR signals is implemented, the processing circuitry 160 and controls 162 may provide for the ability to mix the range of image presentation from 0% to 100% for both the thermal and image intensifier outputs. ... The processing circuitry 160 may fuse the outputs of the NIR and LWIR sensors 116, 118 together. ... Advanced signal processing can then be

accomplished such as a pixel-by-pixel addition, subtraction, convolution, and image enhancement". The key phrase is advanced signal processing can then be accomplished. That is, advanced signal processing such as image enhancement occurs after image fusion.

However, claim 37 recites the limitation "said pixel-by-pixel data fusion comprises pixel-by-pixel addition", claim 38 recites the limitation "said pixel-by-pixel data fusion comprises pixel-by-pixel subtraction", claim 39 recites the limitation "said pixel-by-pixel data fusion comprises pixel-by-pixel convolution", and claim 40 recites the limitation "said pixel-by-pixel data fusion comprises pixel-by-pixel image enhancement".

Therefore, while the specification discloses image fusion obtained by mixing the range of image presentation from 0% to 100%, pixel-by-pixel data fusion comprising pixel-by-pixel addition, subtraction, convolution, or image enhancement was not described in the specification.

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claim 14 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 14 recites the limitation "said sensor assembly" in lines 8-9. There is insufficient antecedent basis for this limitation in the claim.

12. Claim 27 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such



omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: a transceiver to other elements.

***Claim Rejections - 35 USC § 103***

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claims 6, 16, 27, 31, 32, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horn (US 6,335,526) in view of Ferguson (US 6,379,009) and Yona *et al.* (US 6,195,206).

The specification (pg. 1) describes the visible (VIS) band as ~0.4  $\mu\text{m}$  to ~0.76  $\mu\text{m}$ , the near infrared (NIR) band as ~0.76  $\mu\text{m}$  to ~1.1  $\mu\text{m}$ , the short wave infrared (SWIR) band as ~1.1  $\mu\text{m}$  to ~3  $\mu\text{m}$ , the medium wave infrared (MWIR) band as ~3  $\mu\text{m}$  to ~7  $\mu\text{m}$ , and the long wave infrared (LWIR) band as ~7  $\mu\text{m}$  to ~18  $\mu\text{m}$ .

In regard to claim **36**, Horn discloses (Fig. 1) an infrared and visible image fusion device comprising: a display device (15) and a camera (10, 11), said camera comprising:

- (a) an aperture (*i.e.*, optics 10) arranged to allow radiation to enter said camera (10, 11);
- (b) a first sensor having a first output, said first output representing an image of said radiation passing through said aperture (10) filtered into a first spectral range,

wherein at least a portion of said first spectral range includes visible light (e.g., 0.6 to 0.9  $\mu\text{m}$ ; column 2, lines 10-17);

- (b) a second sensor (e.g., LWS; column 2, lines 35-67) having a second output, said second output representing an image of said radiation passing through said aperture (10) filtered into a second spectral range, wherein at least a portion of said second spectral range includes infrared radiation (e.g., 8-12  $\mu\text{m}$  in the LWIR band; column 2, lines 35-67); and
- (c) electronic image fusion circuitry (13, 14) configured to process said first output representing said first spectral range and said second output representing said second spectral range (column 1, line 54 to column 2, line 17; column 3, lines 1-10 and 49-51) is realized at said display device (15).

While Horn also discloses (column 1, line 54 to column 2, line 17) that the radiation input of a view scene is collimated onto at least two focal plane arrays and that the data from the focal plane arrays are processed by readout circuits which utilize fusion algorithms to provide output signals to a flat panel display (column 3, lines 44-47), the device of Horn lacks an explicit description of a beam splitter having a first waveband filter arranged to pass radiation in said first spectral range to said first sensor and a second waveband filter arranged to pass radiation in said second spectral range to said second sensor and that the fused output signals provided by the fusion algorithms comprises converting the first and second outputs to a consistent pixel and size format. However, optics (such as objective lenses, beam splitters, and waveband filters) for night vision technology are well known in the art. For example, Ferguson teaches

(column 1, line 34 to column 2, line 64; column 7, lines 10-30) a conjugate path (*i.e.*, a common optical axis) on which beam splitters, waveband filters, display devices (*i.e.*, projector) are arranged to selectively direct images having different spectral ranges so as to overlap and display substantially parallax-free images. Yona *et al.* teach (column 3, lines 9-58; column 15, line 49 to column 16, line 26) that signal processing combines pixel by pixel two measured images into one digital image, which is then displayed on a display. Therefore it would be obvious to one of ordinary skill at the time of the invention to arrange apertures, beam splitters, waveband filters, and the display device along a common optical axis in the device of Horn, in order to measure substantially parallax-free overlapped images which are then processed by readout circuits which utilize fusion algorithms (*e.g.*, by converting the first and second outputs to a consistent pixel and size format for pixel by pixel combination) to provide a fused image output signal to a flat panel display.

In regard to claim 6 which is dependent on claim 36, the device of Horn lacks a beam combiner arranged to optically combine said first output comprising a first optical image and second output comprising a second optical image into a third output and an optical viewer arranged to provide said first output, said second output, or said third output. However, optics (such as beam combiners) for night vision technology are well known in the art. For example, Ferguson teaches (column 1, line 34 to column 2, line 64; column 7, lines 10-30) a conjugate path (*i.e.*, a common optical axis) on which beam combiners (*i.e.*, beam splitters) and waveband filters are arranged to selectively direct images having different spectral ranges so as to overlap and display substantially

parallax-free images. Therefore it would be obvious to one of ordinary skill to provide a beam combiner in the device of Horn, in order to display substantially parallax-free overlapped images.

In regard to claim **16** which is dependent on claim 36, Horn also discloses (column 1, line 54 to column 2, line 17) that said display device is capable of selectively displaying said first output, said second output, or a fused image from said first and second outputs, wherein said fused image comprises at least a portion of said first output with at least a portion of said second output.

In regard to claim **27** which is dependent on claim 36, Horn discloses (column 3, lines 58-61) a transceiver arranged to transmit and receive image signals to and from a remote location.

In regard to claim **31** which is dependent on claim 36, Horn also discloses (column 3, lines 1-10 and 49-51) processing circuitry arranged to implement image processing and automatic target recognition (*i.e.*, ATR).

In regard to claim **32** which is dependent on claim 36, the device of Horn lacks a switch arranged to alternatively display said first and second outputs. However, Horn also discloses (Fig. 1) a control panel (16). Therefore it would be obvious to one of ordinary skill at the time of the invention that the control panel (16) in the device of Horn comprises a switch arranged to alternatively display said first and second outputs, in order to selectively view first and second outputs.

15. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Horn (US 6,335,526) in view of Fergason (US 6,379,009) and Yona *et al.* (US 6,195,206) as applied to claim 36 above, and further in view of Owen (US 5,497,266).

In regard to claim 4 which is dependent on claim 36, while Horn also discloses (column 1, line 54 to column 2, line 17) that the radiation input of a view scene is collimated onto at least two focal plane arrays, the modified device of Horn lacks an explicit description of first and second objective lenses (e.g., identical optics) between said beam splitter and said first and second sensor respectively. However, optics (such as objective lenses, beam splitters, and waveband filters) for night vision technology are well known in the art. For example, Owen teaches (column 6, line 60 to column 7, line 10) to provide an objective lens for a sensor in order to flatten the image field. Therefore it would be obvious to one of ordinary skill at the time of the invention to provide objective lenses for the sensors in the modified device of Horn, in order flatten the image field.

16. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Horn (US 6,335,526) in view of Fergason (US 6,379,009) and Yona *et al.* (US 6,195,206) as applied to claim 36 above, and further in view of Menke (US 3,379,830).

In regard to claim 5 which is dependent on claim 36, while Horn also discloses (column 1, line 54 to column 2, line 17) that the radiation input of a view scene is collimated onto at least two focal plane arrays, the modified device of Horn lacks an explicit description of a common objective lens comprising a first concave mirror arranged to reflect radiation entering the aperture, a reflective surface arranged to

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redirect said radiation reflected off said common objective lens toward said beam splitter. However, optics (such as objective lenses, beam splitters, and waveband filters) for night vision technology are well known in the art. For example, Menke teaches (Fig. 2) a common objective lens (16) comprising a first concave mirror arranged to reflect radiation entering an aperture in order to observe images having different spectral ranges. Therefore it would be obvious to one of ordinary skill at the time of the invention to provide a first concave mirror in the modified device of Horn, in order to display substantially parallax-free overlapped images.

17. Claims 9, 10, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horn (US 6,335,526) in view of Fergason (US 6,379,009) and Yona *et al.* (US 6,195,206) as applied to claim 6 above, and further in view of Hanson *et al.* (US 5,497,266).

In regard to claims **9** and **10** which are dependent on claim 6, while Horn also discloses (column 3, lines 47-49) that the goggle subsystem is helmet mounted, the modified device of Horn lacks an explicit description that said optical viewer aligns with the eye of an operator and repositionable away from the eye of said operator. However, helmet mounted goggles are well known in the art. For example, Hanson *et al.* teach (column 2, lines 5-18) that said optical viewer (*i.e.*, video display) aligns with the eye of an operator and repositionable away from the eye of said operator. Therefore it would be obvious to one of ordinary skill at the time of the invention to provide a repositionable goggle subsystem in the modified device of Horn, in order to stow the goggles out of the operator's line of sight when the goggles are not in use.

In regard to claim **33** which is dependent on claim 36, the modified device of Horn lacks that said first and second outputs are arranged such that when a user opens the left eye while holding the right eye closed, the first output may be seen, when said user opens the right eye while holding the left eye closed, the second output may be seen, and when both the left and right eyes are open, said user may see both said first and second outputs overlapped. However, helmet mounted displays are well known in the art. For example, Hanson *et al.* teach (Fig. 9) a different display (video display 88 and night vision equipment 100) for each eye of a user in order to provide a different view for each eye (column 7, line 52 to column 8, line 26). It should be noted that it is inherent that an eye can only see when the eye is open. Therefore it would be obvious to one of ordinary skill at the time of the invention to provide a different display for each eye of an operator in the modified device of Horn, in order for each eye to see a different view.

18. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Horn (US 6,335,526) in view of Ferguson (US 6,379,009) and Yona *et al.* (US 6,195,206) as applied to claim 36 above, and further in view of Gross *et al.* (US 6,075,661).

In regard to claim **14** which is dependent on claim 36 in so far as understood, the modified device of Horn lacks an explicit description of an interconnect assembly comprising: a first connector arranged to releasably secure to a headgear said infrared imaging device; a second connector arranged to releasably secure to said headgear a power assembly arranged serving as a balancing weight; and at least one interconnecting cable coupling said power assembly to said infrared imaging device.

However, helmet mounted goggles are well known in the art. For example, Gross *et al.* teach (column 2, line 55 to column 3, line 28; Fig. 1) an infrared imaging device (16) releasably secured to the front of headgear (26) and coupled by at least one interconnecting cable (14) to a power assembly (12) releasably secured to the back of headgear (26). Since the infrared imaging device and power assembly are symmetrically located about the headgear, they serve as balancing weights to each other. Therefore it would be obvious to one of ordinary skill at the time of the invention to provide a known interconnect assembly in the modified device of Horn, in order to releasably secure the infrared imaging device and the interconnected power assembly.

19. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Horn (US 6,335,526) in view of Ferguson (US 6,379,009) and Yona *et al.* (US 6,195,206) as applied to claim 36 above, and further in view of Ansley *et al.* (US 5,726,671).

In regard to claim **15** which is dependent on claim 36, the modified device of Horn lacks that said display device comprises a viewing device mounted to a headgear such that, when said headgear is worn by an operator, said viewing device is positioned just above the eyes of an operator, and said viewing device may be viewed by said operator by looking upwards towards said viewing device. However, helmet mounted displays are well known in the art. For example, Ansley *et al.* teach (column 4, lines 21-27; Fig. 4) a viewing device positioned just above the eyes of an operator in order to provide a high resolution display (column 1, lines 11-22). Therefore it would be obvious to one of ordinary skill at the time of the invention to provide a viewing device is



positioned just above the eyes of an operator in the modified device of Horn, in order to obtain a high resolution display.

20. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Horn (US 6,335,526) in view of Fergason (US 6,379,009) and Yona *et al.* (US 6,195,206) as applied to claim 36 above, and further in view of Nettleton *et al.* (US 5,336,899).

In regard to claim **28** which is dependent on claim 36, the modified device of Horn lacks that further comprising a laser illuminator mounted to said camera for NIR illumination. However, night vision goggles are well known in the art. For example, Nettleton *et al.* teach (column 1, lines 12-40; column 2, line 64 to column 3, line 2) a laser illuminator for NIR illumination to enhance viewing with night vision goggles. Therefore it would be obvious to one of ordinary skill at the time of the invention to provide a NIR laser illuminator in the modified device of Horn, in order to enhance night vision viewing.

21. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Horn (US 6,335,526) in view of Fergason (US 6,379,009) and Yona *et al.* (US 6,195,206) as applied to claim 36 above, and further in view of Jungkman *et al.* (US 4,488,414).

In regard to claim **29** which is dependent on claim 36, the modified device of Horn lacks a waterproof and fireproof envelope sealing said camera and said display device; and at least one foam cut inserted between said envelope and said camera, said at least one foam cut arranged to protect said infrared imaging device against vibration, impact, and hot/cold weather. However, foam envelopes for night vision devices are well known in the art. For example, Jungkman *et al.* teach (column 1, lines

12-40; column 2, line 47 to column 3, line 48) foam envelopes for night vision devices (e.g., infrared binoculars). Therefore it would be obvious to one of ordinary skill at the time of the invention to provide a waterproof and fireproof envelope at least one foam cut in the modified device of Horn, in order to obtain a portable night vision device that can withstand high shock environments.

22. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Horn (US 6,335,526) in view of Ferguson (US 6,379,009) and Yona *et al.* (US 6,195,206) as applied to claim 36 above, and further in view of Mammone (US 4,949,378).

In regard to claim **30** which is dependent on claim 36, while Horn also discloses (Fig. 1) a control panel (16), the modified device of Horn lacks a voice activated switch arranged to selectively control said infrared imaging device. However, voice activated switches are well known in the art. For example, Mammone teaches (column 4, lines 60-64) that voice activated switches are obvious equivalents for manual switches. Therefore it would be obvious to one of ordinary skill at the time of the invention to provide a voice activated switch in the modified device of Horn, in order to selectively control said infrared imaging device.

23. Claim 41 is rejected under 35 U.S.C. 103(a) as being unpatentable over Horn (US 6,335,526) in view of Ferguson (US 6,379,009) and Chipper (US 6,292,293).

In regard to claim **41**, Horn in view of Ferguson is applied as in claim 36 above. While Horn also discloses (column 2, lines 33-34) that the aperture (*i.e.*, optics 10) process input radiation that is collimated onto a sensor subassembly (11), the modified device of Horn lacks a description of an objective lens common to said first and second

sensors between said aperture and said beam splitter, wherein said common objective lens is arranged to allow radiation in at least a portion of said first spectral range and at least a portion of said second spectral range to pass there through and comprises a composite lens free of crystal germanium and comprising elements ZnSe-Ge<sub>33</sub>As<sub>12</sub>Se<sub>55</sub>-ZnSe. However, optics (such as lens) for night vision technology are well known in the art. For example, Chipper teaches (column 7, line 53 to column 8, line 40; Table 2) infrared material such as ZnSe and AMTIR-1 (*i.e.*, Ge<sub>33</sub>As<sub>12</sub>Se<sub>55</sub>) are suitable for wide angle infrared lenses. Therefore it would be obvious to one of ordinary skill at the time of the invention to provide wide angle infrared lenses (*e.g.*, ZnSe-Ge<sub>33</sub>As<sub>12</sub>Se<sub>55</sub>-ZnSe) in the modified device of Horn for wide angle applications.

#### ***Response to Arguments***

24. Applicant's arguments with respect to claims 4-6, 9, 10, 14-16, 27-33, and 36-41 have been considered but are moot in view of the new ground(s) of rejection.

#### ***Conclusion***

25. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

26. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shun Lee whose telephone number is (571) 272-2439. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SL

  
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